Name_____ Date_____ Period_____

Chapter 3A- The Molecules of Cell Carbon

Directions: The great variety of organic compounds results from the ability of carbon atoms to form four bonds, creating branching chains of different lengths. Several hydrocarbon molecules, consisting only of carbon and hydrogen, are shown in section 3.1. Practice seeing the versatility of carbon by sketching some hydrocarbon molecules of your own, as suggested below.

1. Sketch a hydrocarbon molecule that is a straight chain, containing 5 carbon atoms and 12 hydrogen atoms, molecular formula C_5H_{12}:

Question: Why does each carbon bond to 4 other atoms?

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2. Now sketch a shorter hydrocarbon chain, with only four carbon atoms:

Question: What is the molecular formula ($C_?H_?$) of the above molecule?_____

3. Sketch another five-carbon hydrocarbon, but this time include one double bond:

Question: What is the molecular formula of this molecule?_____

4. Sketch a five-carbon hydrocarbon molecule that is branched (and contains no double bonds):

Question: What is the molecular formula of this molecule?_____

5. Sketch two five-carbon hydrocarbon molecules in the form of rings, one without double bonds and one with one double bond:

Question: How many hydrogen atoms are in each of these molecules?

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